

Lead Scientist Report

August 11, 2005



Outline

- Science Program Activities
- Presentation by Dr. Wim Kimmerer
- EWA Review Response

Science Program Activities

Symposia, Seminars & Workshops

- ❑ Salmonid Monitoring Workshop (R. Brown; w/ US FWS): August 23-25
- ❑ OCAP Review (R. Brown; w/ NOAA Fisheries): Begin September
- ❑ CALSIM SJ Review (K.T. Shum, Modeling Forum): August, September & October workshops
- ❑ IEP POD Technical Review & Workshop (S. Culberson; C. Armor, DFG): November
- ❑ EWA Workshop (EWA biologists): November/December
- ❑ IEP Redbook Review (IEP and CBDA staff): to be determined
- ❑ State of the Estuary (M. Brockbank, Estuary Project): October
- ❑ 4th Biennial CALFED Science Conference (CBDA & Agency staff): Oct, 2006

Review of POD Activities

- ❑ S.P. technical review team for the present work plan
- ❑ IEP Internal POD team reviews and management
- ❑ S.P. technical panel to review the 2005 results and the 2006 work plan
- ❑ New Science Program staff (Steve Culberson) to work nearly exclusively on the Delta fish decline problem
- ❑ Science Program science advisors (Randy Brown and Wim Kimmerer) working on POD issues
- ❑ S.P. working with the US Geological Survey in Menlo Park to fund a researcher to work on the Delta ecosystem transformations
- ❑ S.P. and ISB to work with NRC staff for a National Academy of Sciences review next year

Resources Dedicated to POD

\$7.7 million in existing IEP funds.

\$0.5 million of redirected IEP funds.

\$1.7 million in new IEP studies.

\$2.7 million from Science Program PSP.

Total of \$12.6 million dollars to POD activities.

Additional \$12 million left in S.P budget for next two years for directed actions.

The POD investment is an unprecedented allocation of resources, even for CALFED.

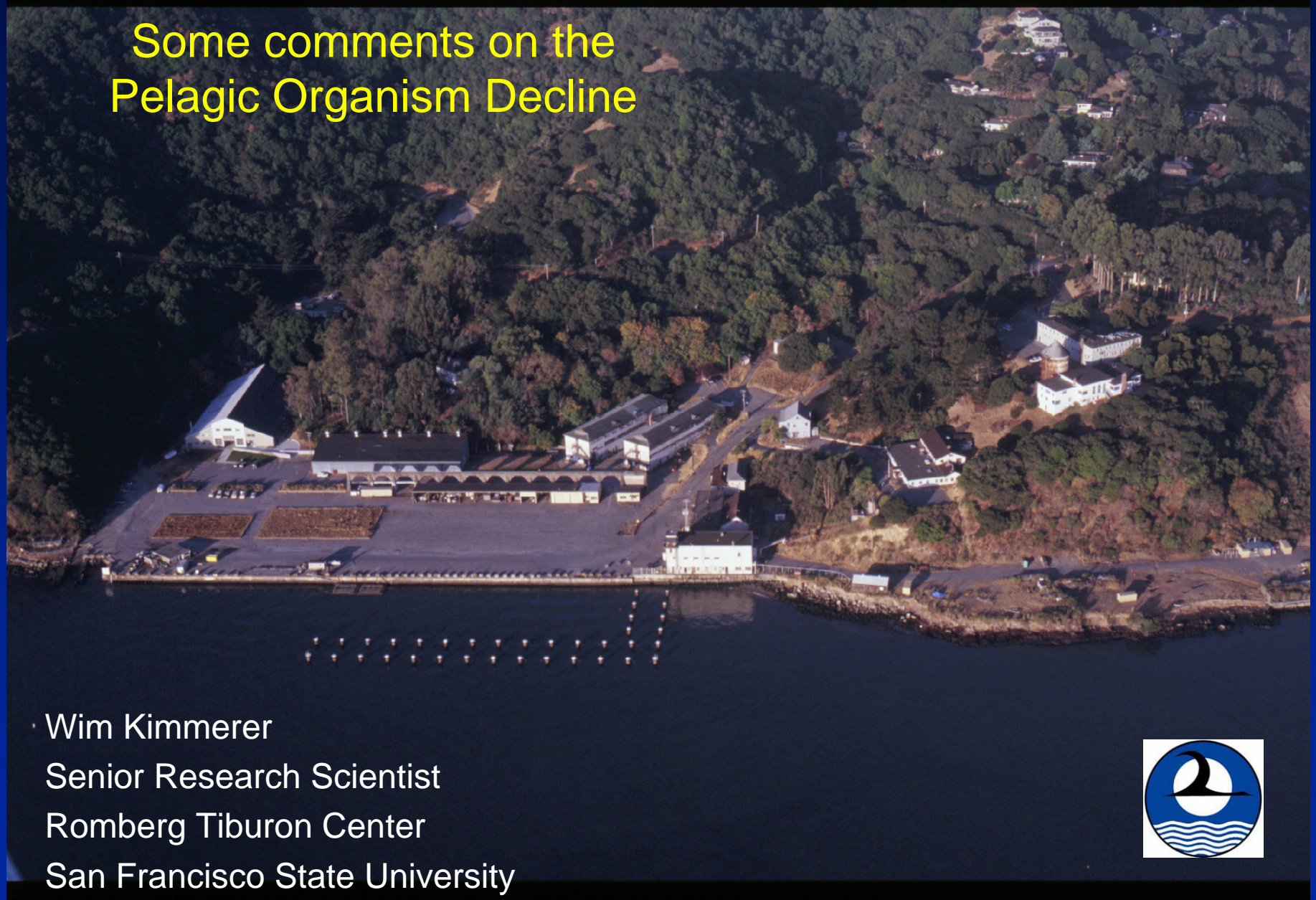
Science Advisor Presentation

San Francisco Estuary Ecologic Controls



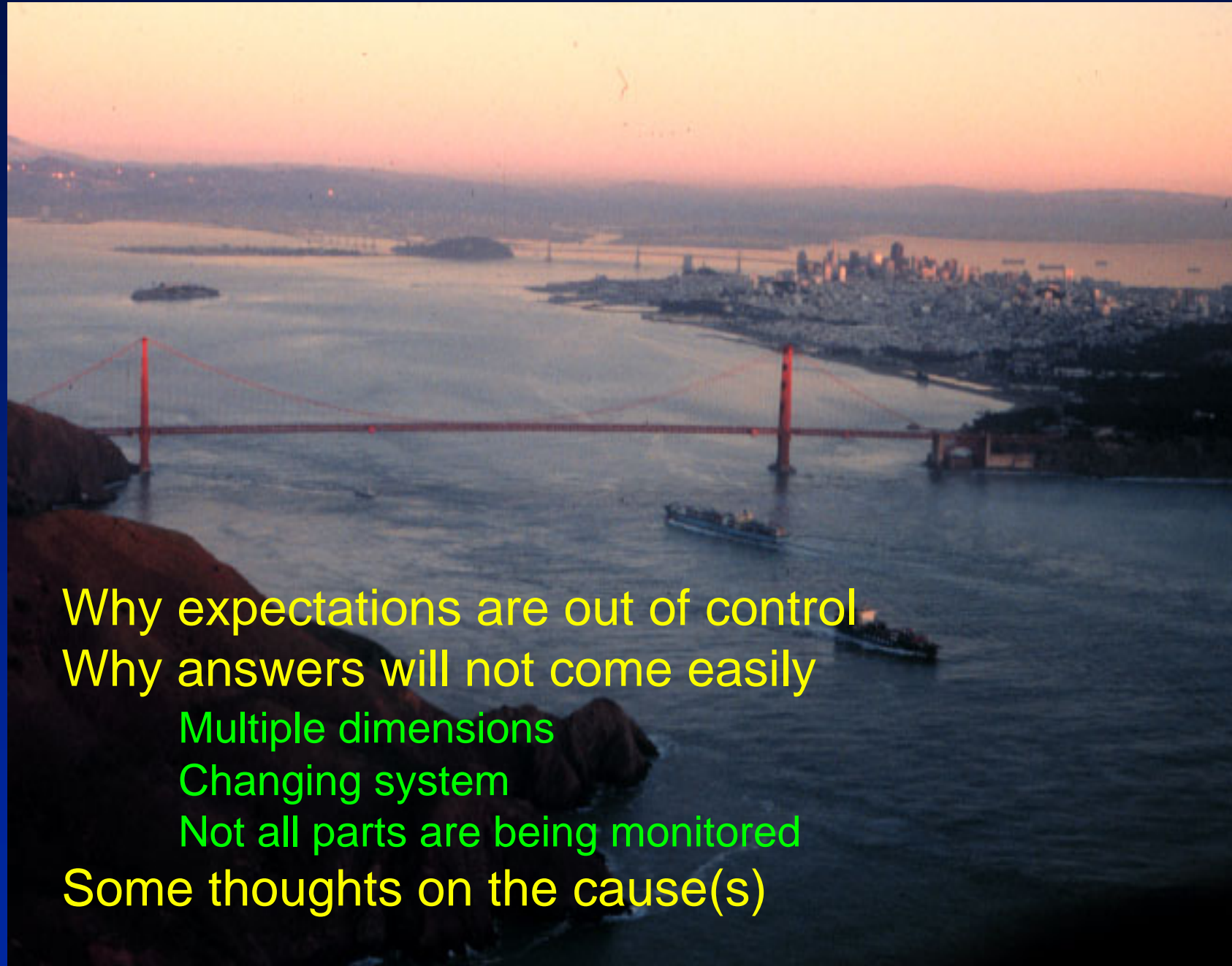
Dr. Wim Kimmerer
Romberg Tiburon Center
San Francisco State University

Some comments on the Pelagic Organism Decline



Wim Kimmerer
Senior Research Scientist
Romberg Tiburon Center
San Francisco State University





Why expectations are out of control

Why answers will not come easily

- Multiple dimensions

- Changing system

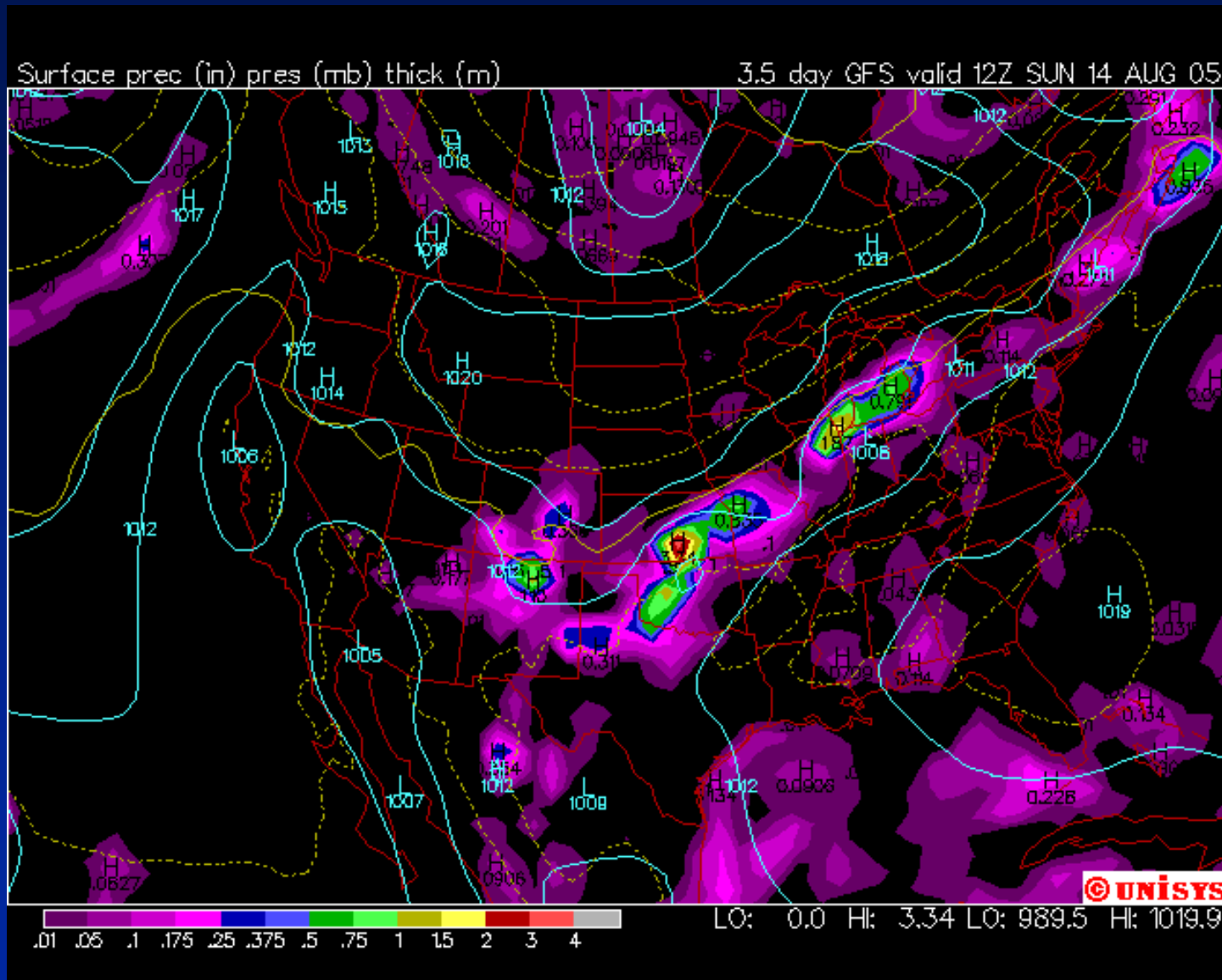
- Not all parts are being monitored

Some thoughts on the cause(s)

Why expectations are out of control

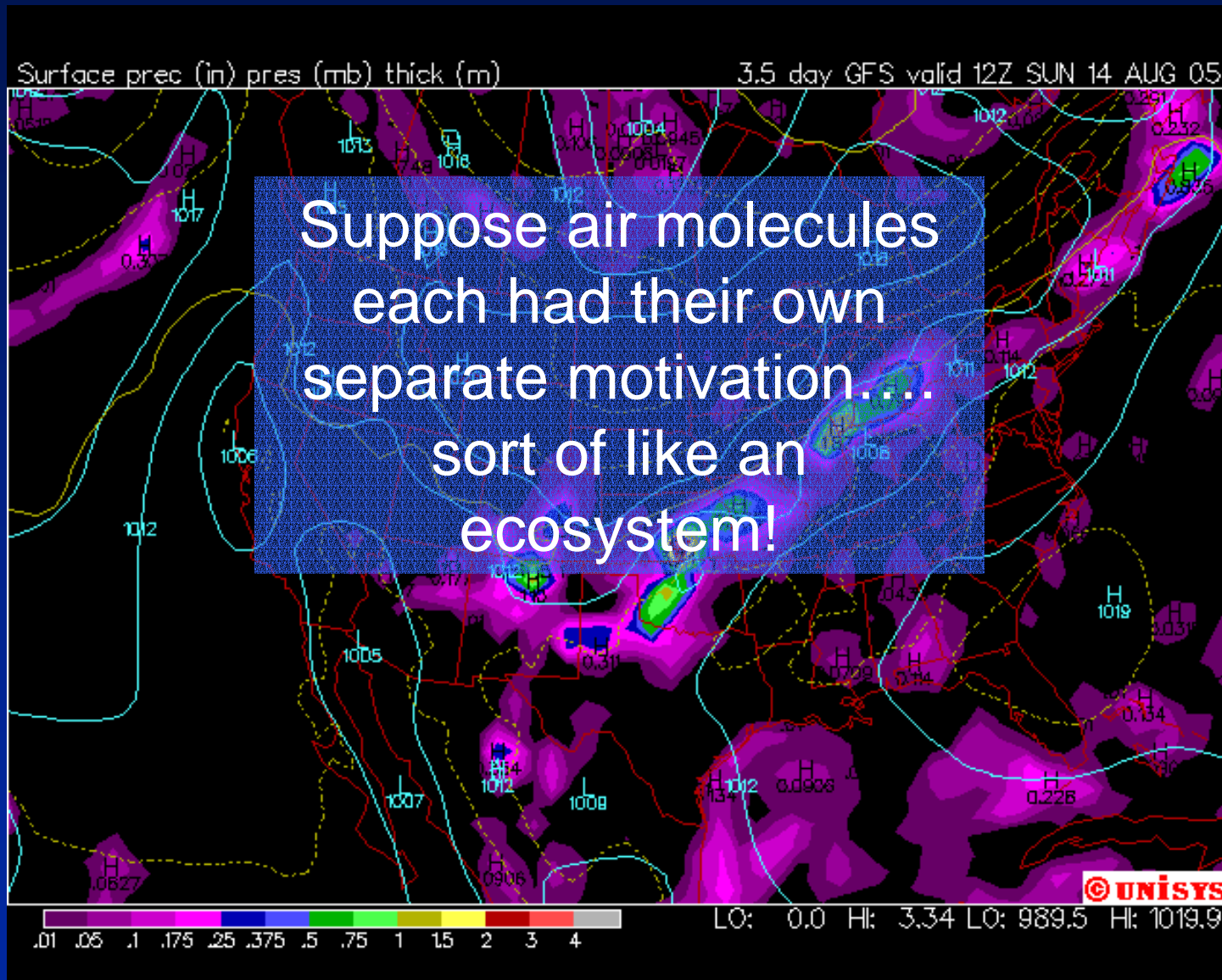
- Initial premises of the CALFED ERP
 - “The Delta’s broke, we have to fix it”
 - There is not enough habitat!
 - Physical habitat is a substitute for water
- Pelagic Organism Decline
 - Pelagic = Open Water
 - Habitat restoration unlikely to affect it!
 - Relatively little control

Do you believe this?



Forecast
model
output for 3
days ahead:
Air, water,
heat, lift,
inertia, and
friction

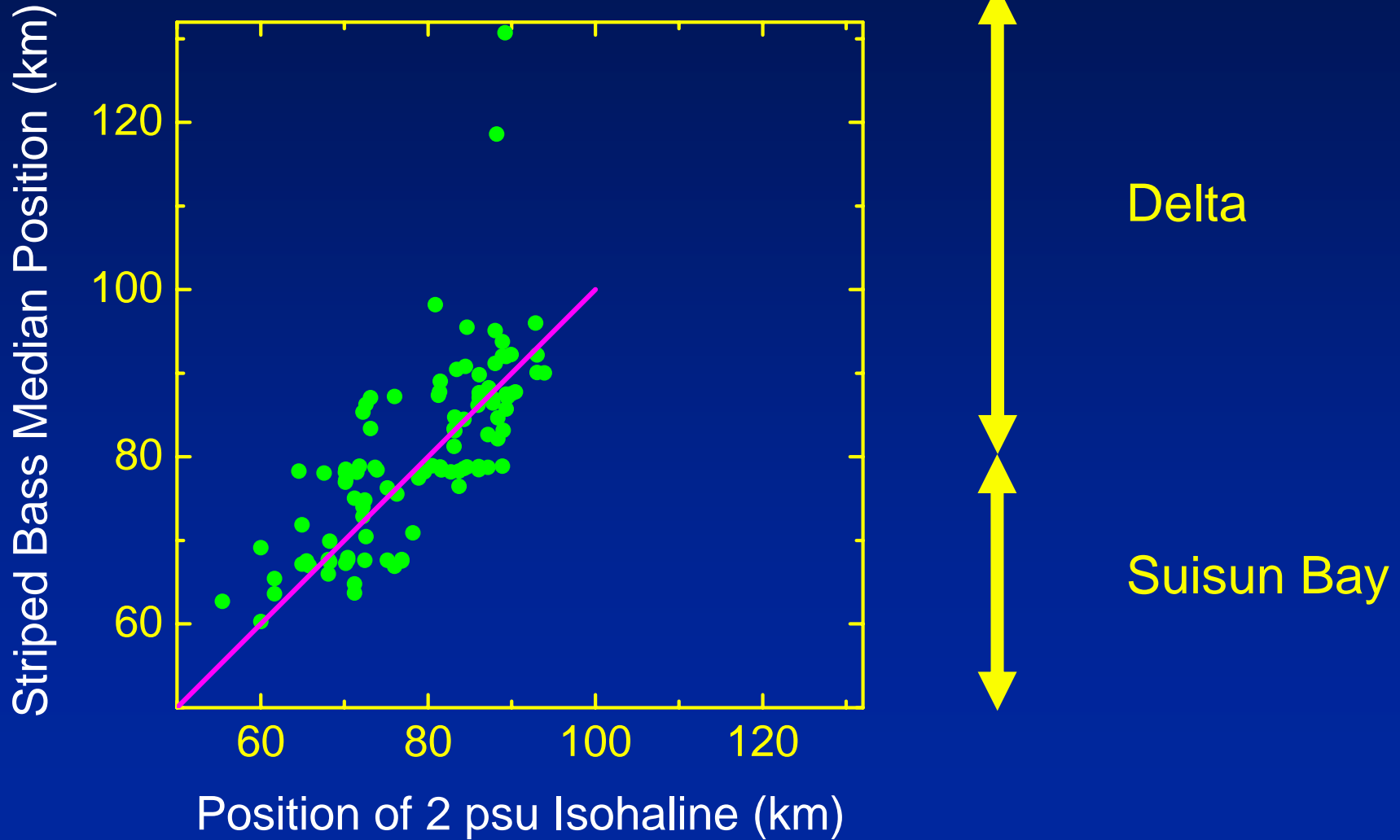
What about this?



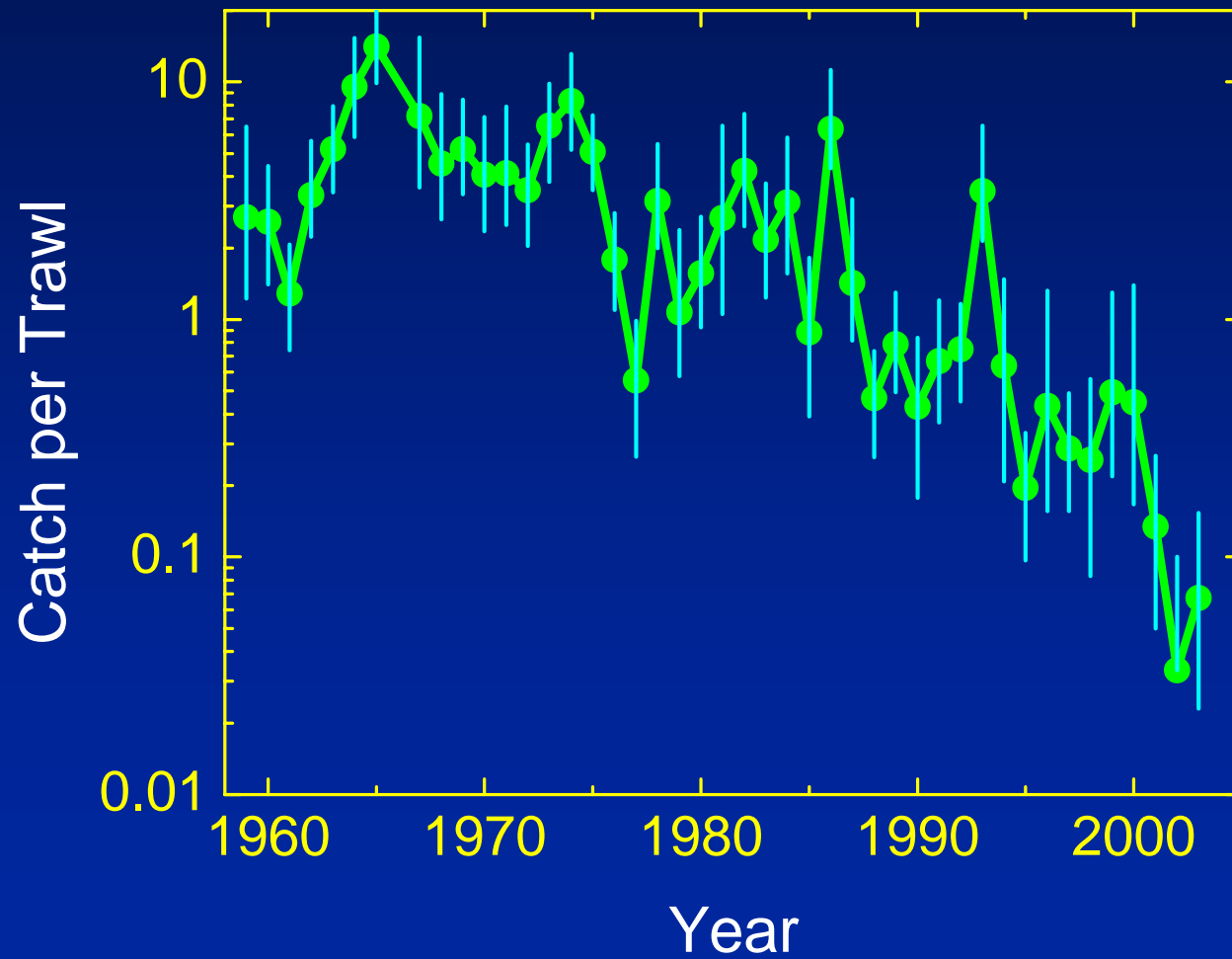
Clues to causes of POD

- Timing (2000-2001)
- Location
 - Suisun Bay, western Delta
 - Not Suisun Marsh
- Species (all are pelagic, plankton feeders)
 - Copepod prey has declined
 - Chlorophyll has not declined
 - What has affected the copepods?

Young striped bass live in brackish water



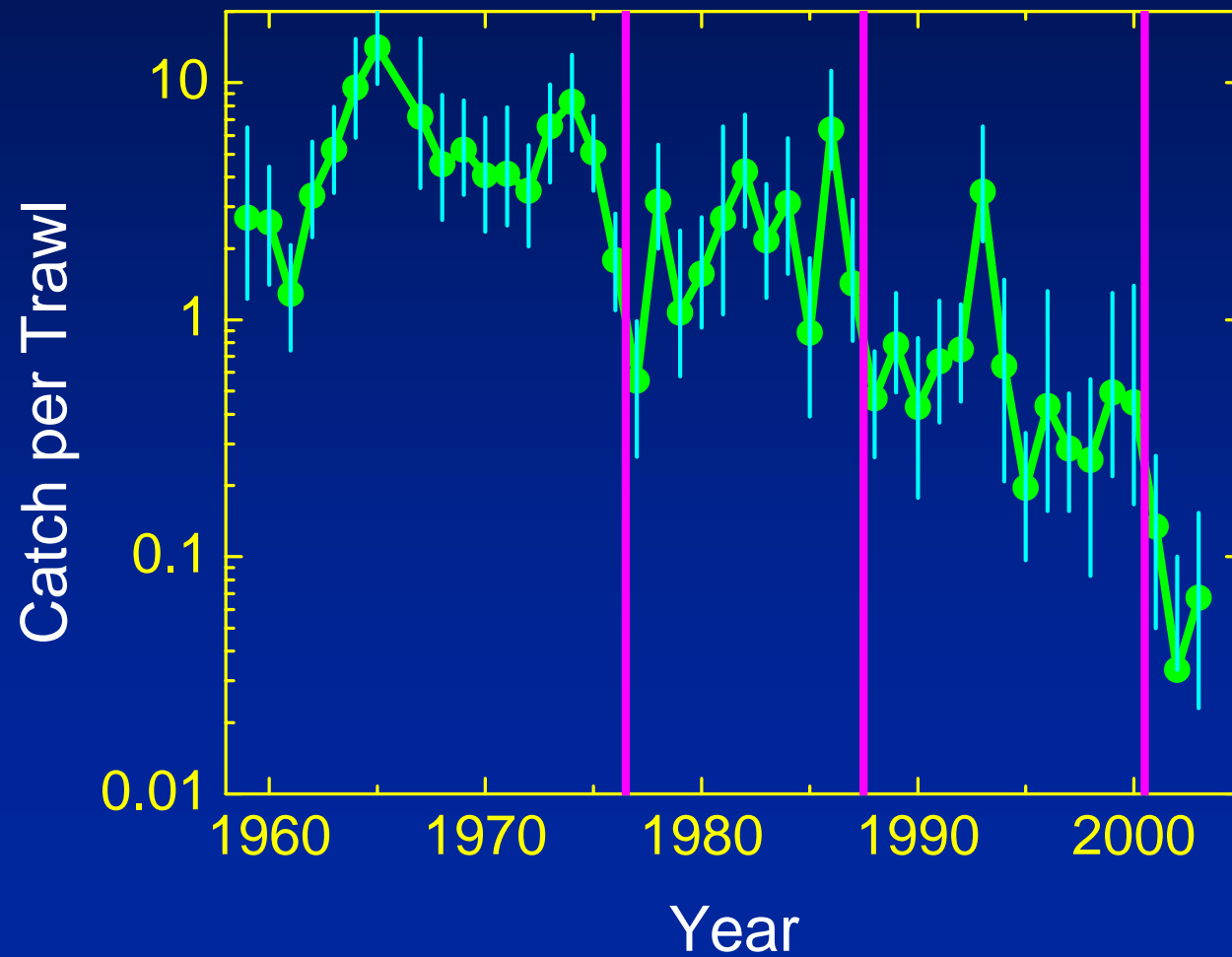
Young striped bass abundance



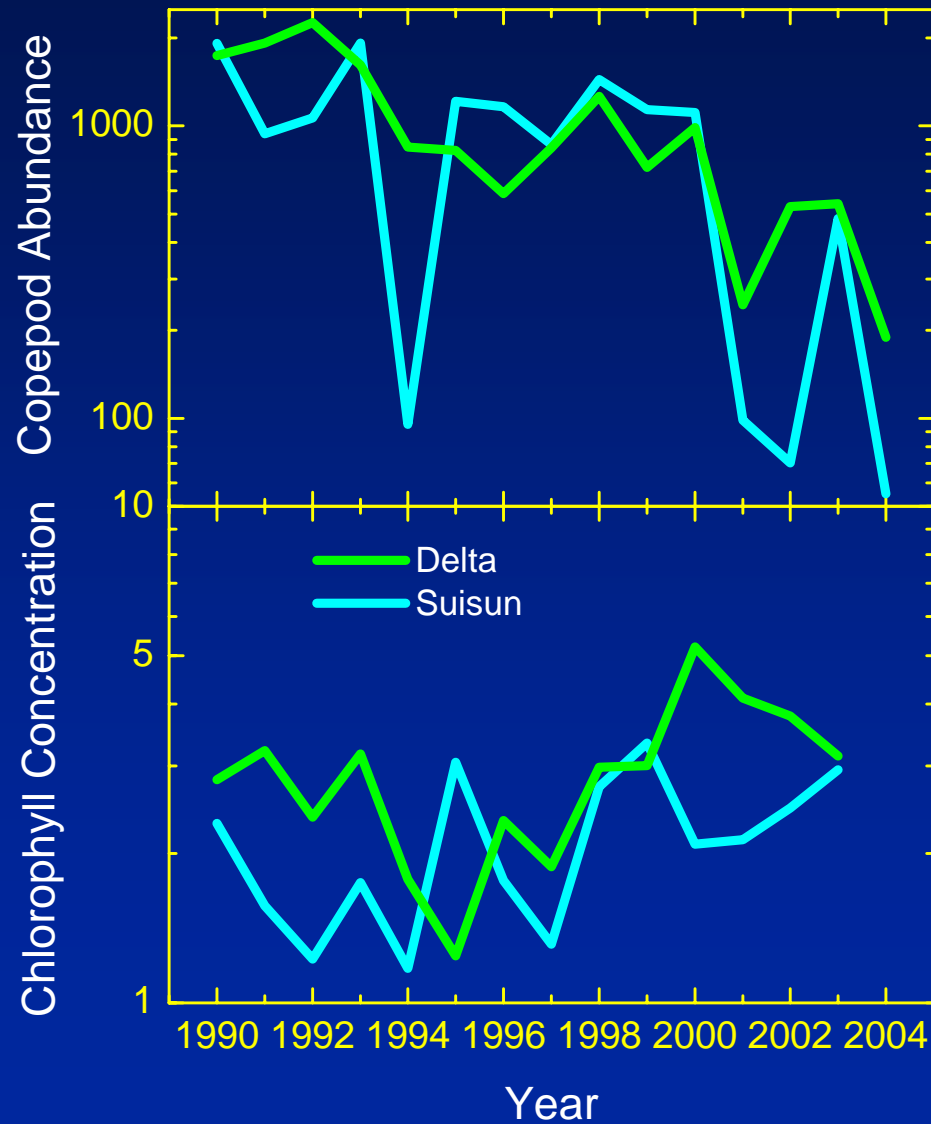
Is this a
sudden
decline, or
steady?

Young striped bass abundance

El Niño Clam ???



Plankton patterns – glimpses into the foodweb



Copepods

Why did copepods go down and not phytoplankton?

Phytoplankton

Potential influences on POD (my list)

- Water project effects
- Climate effects
- Contaminants
- Toxic algae
- Introduced species

Potential influences on POD (my list)

- Water project effects
 - No clear event or shift (timing)
 - Past years of poor flow = no POD
- Climate effects
- Contaminants
- Toxic algae
- Introduced species

Potential influences on POD (my list)

- Water project effects
- Climate effects
 - No obvious signal
 - Extreme high and low flows in past
 - POD only in last few years!
- Contaminants
- Toxic algae
- Introduced species

Potential influences on POD (my list)

- Water project effects
- Climate effects
- Contaminants
 - There are many
 - We don't know much about them
 - BUT generally effects are sporadic
- Toxic algae
- Introduced species

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Potential influences on POD (my list)

- Water project effects
- Climate effects
- Contaminants
- Toxic algae
- Introduced species
 - Red herring?
 - Not “introduced” but “species we don’t like”

What do we do about it?

- Water project effects
- Climate effects
- Contaminants
- Toxic algae
- Introduced species

What about the other stuff?

- POD is not the only thing going on
- Tremendous successes with salmon
- Great improvements in how science is used
- Improvements in understanding
 - Value of floodplains
 - Risk of levee failure
 - What we can and can't do with water, habitat
- Need to look at the big picture, long view

What do we do about it?

- Water project effects not much scope
- Climate effects not much we can do
- Contaminants difficult to control
- Toxic algae maybe impossible
- Introduced species they are already here

... the knobs are small and not well connected

Will we be able to figure this out?

- (“What you mean We, ...”)
- Lots of good talent at IEP
- Many outside scientists involved
- Tons of high-quality data

Will we be able to figure this out?

- (“What you mean We, ...”)
- Lots of good talent at IEP
- Many outside scientists involved
- Tons of high-quality data
- Yes, we will figure it out
(when?)

Joint Response to 2004 Environmental Water Account Technical Review Panel Report

presented by
Dave Harlow for
EWA Implementing Agencies